

**Ultrathin bimetallic films and their adsorption properties: Surface alloys including
Pd and alkali-modified Cu surfaces**

Jens Onsgaard

Aalborg University, Denmark

The conditions for obtaining surface alloying of ultrathin bimetallic, PdCu and PdAg, films on a Ru(0001) substrate have been studied. Dimensionality and temperature effects are found. There is good agreement between experimentally determined core-level shifts for CuPd and AgPd surface alloys and calculations from first-principles theory.

Interest in the adsorption of low-molecular gases like H, CO and CO₂ on alkali-promoted Cu surfaces stems from the promoting role of alkali metals in heterogeneous catalysis. The change in the electronic properties of the surfaces has strong consequences for the adsorption and reactive properties of the Cu surfaces. Another important factor for the reaction yields is the corrugation of the surface. The influence of these two parameters, the alkali metal coverage and the corrugation, has been investigated on a series of low-index and stepped copper surfaces.